THE CLAIMS

1. (Previously presented) An ultrasound breast imaging assembly comprising:

first and second compression plates that are angled with respect to one another;

a breast compression area defined between said first and second compression plates;

at least one pivot assembly allowing relative motion between said first and second compression plates, said at least one pivot assembly being operatively connected to each of said first and second compression plates; and

an ultrasound probe having an active matrix array (AMA) positioned on one of said first and second compression plates, said ultrasound probe being configured to translate over said one of said first and second compression plates.

2. (Previously presented) The ultrasound breast imaging assembly of claim 1, wherein said at least one pivot assembly comprises first and second pivot assemblies, wherein said first pivot assembly is operatively connected to said first compression plate, and said second pivot assembly is operatively connected to said second compression plate.

3. (Original) The ultrasound breast imaging assembly of claim 1, wherein one of said first and second compression plates remains in a fixed orientation with respect to the other.

4. (Original) The ultrasound breast imaging assembly of claim 1, wherein the relative motion between said first and second compression plates occurs over an arcuate path.

5. (Original) The ultrasound breast imaging assembly of claim 1, wherein said at least one pivot assembly comprises a spring member that connects said first compression plate to said second compression plate.

6. (Original) The ultrasound breast imaging assembly of claim 1, wherein said ultrasound breast imaging assembly comprises an upright member supported by a base, said first compression plate being operatively connected to a first pivot assembly, which is in turn positioned on a first portion of said upright member, said second compression plate being operatively connected to a second pivot assembly, which is in turn positioned on a second portion of said upright member.

7. (Original) The ultrasound breast imaging assembly of claim 1, wherein said ultrasound breast imaging assembly comprises an upright member supported by a base, said first compression plate being operatively connected to a first pivot assembly, which is in turn connected to a first extension member, which is in turn translationally secured to said upright member.

8. (Original) The ultrasound breast imaging assembly of claim 7, wherein said second compression plate remains in a fixed orientation.

9. (Original) The ultrasound breast imaging assembly of claim 7, wherein said second compression plate is operatively connected to a second pivot assembly, which is in turn

connected to a second extension member, which is in turn translationally secured to said upright member.

10. (Original) The ultrasound breast imaging assembly of claim 7, wherein said first extension member is perpendicular to said upright member, and wherein said first extension member translates along said upright member while said first and second compression plates remain angled with respect to one another, wherein the angle between the first and second compression plates changes when a breast is compressed therebetween.

11. (Original) The ultrasound breast imaging assembly of claim 1, wherein said first and second compression plates are configured to compress a breast in said breast compression area so that said probe may image the breast, and wherein said first and second compression plates remain angled with respect to one another, wherein the angle between the first and second compression plates changes upon the relative motion between the first and second compression plates.

12. (Original) The ultrasound breast imaging assembly of claim 1, wherein said first and second compression plates are radiolucent.

13. (Original) The ultrasound breast imaging assembly of claim 1, wherein said first and second compression plates are configured to adequately contact the breast for imaging even though the breast is not substantially flattened.

14. (Original) The ultrasound breast imaging assembly of claim 1, wherein said ultrasound breast imaging assembly is used in conjunction with an x-ray mammography system.

15. (Original) The ultrasound breast imaging assembly of claim 14, wherein said ultrasound breast imaging assembly is secured to a portion of said x-ray mammography system.

16. (Original) The ultrasound breast imaging assembly of claim 1, wherein said AMA comprises a plurality of rows of a plurality of ultrasound elements.

17. (Original) The ultrasound breast imaging assembly of claim 16, wherein at least one group of said plurality of ultrasound elements is selectively activated during an imaging procedure.

18. (Previously presented) The ultrasound breast imaging assembly of claim 1, further comprising an upright member supported by a base, and a swivel member that connects said at least one pivot assembly and first and second compression plates to said upright member, wherein said swivel member is configured to rotate said first and second compression plates through a plurality of imaging orientations.

19. (Original) The ultrasound breast imaging assembly of claim 18, wherein said plurality of imaging orientations comprise a cranio-caudal (CC) orientation and a mediolateral oblique (MLO) orientation.

20. (Original) The ultrasound breast imaging assembly of claim 1, wherein said ultrasound breast imaging assembly is configured to allow a patient to be imaged in a standard mammography position.

21. (Original) The ultrasound breast imaging assembly of claim 1, wherein one of said first and second compression plates comprises a sonolucent compression film, and wherein said ultrasound probe is configured to translate over said sonolucent compression film.

22. (Original) The ultrasound breast imaging assembly of claim 1, wherein one of said first and second compression plates comprises a sound absorbing stabilization plate.

23. (Original) The ultrasound breast imaging assembly of claim 1, wherein the first and second compression plates remain angled with respect to one another during the relative motion between said first and second compression plates, and wherein the angle between said first and second compression plates changes during the relative motion between the first and second compression plates.

24. (Previously presented) A breast imaging and display system comprising:

a central processing unit (CPU);

an imaging workstation in electrical communication with said CPU; and

an ultrasound breast imaging assembly operatively connected to, and in electrical communication with, said CPU, said ultrasound breast imaging assembly comprising:

an upper compression plate;

a lower compression plate, wherein the planes of said upper and lower compression plates are angled with respect to one another;

a breast compression area defined between said upper and lower compression plates;

at least one pivot assembly allowing relative motion between said upper and lower compression plates while said planes of said upper and lower compression plates remain angled with respect to one another, said at least one pivot assembly being operatively connected to each of said upper and lower compression plates, wherein the angle between said compression plates changes during the relative motion between said first and second compression plates; and

an ultrasound probe having an active matrix array (AMA) positioned on one of said upper and lower compression plates, said ultrasound probe being configured to translate over said one of said upper and lower compression plates.

25. (Previously presented) The system of claim 24, wherein said at least one pivot assembly comprises upper and lower pivot assemblies, wherein said upper pivot assembly is operatively connected to said upper compression plate, and said lower pivot assembly is operatively connected to said lower compression plate.

26. (Original) The system of claim 24, wherein one of said upper and lower compression plates remains in a fixed orientation with respect to the other.

27. (Original) The system of claim 24, wherein the upper compression plate moves relative to said lower compression plate by pivoting with respect to said lower compression plate over an arcuate path.

28. (Original) The system of claim 24, wherein said at least one pivot assembly comprises a spring member that connects said upper compression plate to said lower compression plate.

29. (Original) The system of claim 24, wherein said ultrasound breast imaging assembly comprises an upright member supported by a base, said upper compression plate being operatively connected to an upper pivot assembly, which is in turn positioned on an upper portion of said upright member, said lower compression plate being operatively connected to a lower pivot assembly, which is in turn positioned on a lower portion of said upright member.

30. (Previously presented) The system of claim 24, wherein said ultrasound breast imaging assembly comprises an upright member supported by a base, said upper compression plate being operatively connected to an upper pivot assembly, which is in turn connected to an upper extension plate, which is in turn translationally secured to said upright member.

31. (Previously presented)The system of claim 30, wherein said lower compression plate remains in a fixed orientation with respect to said upright member.

32. (Previously presented)The system of claim 30, wherein said lower compression plate is operatively connected to a lower pivot assembly, which is in turn connected to a lower extension member, which is in turn translationally secured to said upright member.

33. (Original) The system of claim 30, wherein said upper extension member is perpendicular to said upright member, and wherein said upper extension member translates over said upright member.

34. (Original) The system of claim 24, wherein said upper and lower compression plates are configured to compress a breast in said breast compression area so that said probe may image the breast, and wherein said upper and lower compression plates remain angled with respect to one another during imaging of the breast.

35. (Original) The system of claim 24, wherein said upper and lower compression plates are configured to adequately contact the breast for imaging even though the breast is not substantially flattened.

36. (Original) The system of claim 24, wherein said ultrasound breast imaging assembly is used with an x-ray mammography system.

37. (Original) The system of claim 36, wherein said ultrasound breast imaging assembly is secured to a portion of said x-ray mammography system.

38. (Original) The system of claim 24, wherein said AMA comprises a plurality of rows of a plurality of ultrasound elements.

39. (Original) The system of claim 38, wherein at least one group of said plurality of ultrasound elements is selectively activated and deactivated during an imaging procedure.

40. (Previously presented)The system of claim 24, further comprising an upright member supported by a base, and a swivel member that connects said at least one pivot assembly and upper and lower compression plates to said upright member, wherein said swivel member is configured to rotate said upper and lower compression plates through a plurality of imaging orientations.

41. (Original) The system of claim 40, wherein said plurality of imaging orientations comprise a cranio-caudal (CC) orientation and a mediolateral oblique (MLO) orientation.

42. (Original) The system of claim 24, wherein said ultrasound breast imaging assembly is configured to allow a patient to be imaged in a standard mammography position.

43. (Original) The system of claim 24, wherein one of said upper and lower compression plates comprises a sonolucent compression film, and wherein said ultrasound probe is configured to translate over said sonolucent compression film.

44. (Original) The system of claim 24, wherein one of said upper and lower compression plates comprises a sound absorbing stabilization plate.

45. (Original) The system of claim 24, wherein said CPU receives image data from said ultrasound probe and automatically analyzes said image data for at least one of lesions, cysts and microcalcifications.

46. (Original) The system of claim 24, wherein said image workstation comprises a monitor, wherein said CPU displays an ultrasound image on said monitor, and wherein said image is derived from said ultrasound probe imaging a breast.

47. (Original) The system of claim 46, wherein said CPU also displays an x-ray mammographic image on said monitor within close proximity of said ultrasound image.

48. (Original) The system of claim 47, wherein said ultrasound image is registered with said x-ray mammographic image.

49. (Original) The system of claim 46, wherein said ultrasound image is a representation of an individual ultrasound slice.

50. (Original) The system of claim 46, wherein said ultrasound image is a representation of a thick slice, wherein said thick slice comprises a plurality of individual ultrasound slices.

51. (Original) The system of claim 24, wherein said image workstation comprises a monitor, and wherein said CPU displays a CINE loop of a plurality of individual ultrasound slices on said monitor.

52. (Previously presented) An ultrasound breast imaging assembly comprising:

a first and second compression plates, said first and second compression plates being angled with respect to one another, one of said first and second compression plates comprising a sonolucent compression film, the other of said first and second compression plates comprising a

sound absorbing stabilization plate; and said ultrasound probe configured to translate over said sonolucent compression film;

a breast compression area defined between said first and second compression plates, wherein said first and second compression plates are configured to compress a breast in said breast compression area so that said probe may image the breast, and wherein said first and second compression plates remain angled with respect to one another during the compression;

at least one pivot assembly allowing relative motion over an arcuate path between said first and second compression plates, said at least one pivot assembly being operatively connected to each of said first and second compression plates, wherein said at least one pivot assembly is operatively connected to at least one of said first and second compression plates, and wherein the angle between the first and second compression plates changes upon the relative motion between the first and second compression plates; and

an ultrasound probe having an active matrix array (AMA) positioned on one of said first and second compression plates, wherein said AMA comprises a plurality of rows having a plurality of ultrasound elements; and wherein said ultrasound probe is configured to translate over said one of said first and second compression plates.

53. (Original) The ultrasound breast imaging assembly of claim 52, wherein said at least one pivot assembly comprises a spring member that connects said first compression plate to said second compression plate.

54. (Original) The ultrasound breast imaging assembly of claim 52, wherein said ultrasound breast imaging assembly comprises an upright member supported by a base, said first compression plate being operatively connected to a first pivot assembly, which is in turn positioned a first portion of said upright member, said second compression plate being operatively connected to a second pivot assembly, which is in turn positioned on a second portion of said upright member.

55. (Original) The ultrasound breast imaging assembly of claim 52, wherein said ultrasound breast imaging assembly comprises an upright member supported by a base, said first compression plate being operatively connected to a first pivot assembly, which is in turn connected to a first extension member, which is in turn translationally secured to said upright member.

56. (Original) The ultrasound breast imaging assembly of claim 52, wherein said second compression plate remains in a fixed orientation.

57. (Original) The ultrasound breast imaging assembly of claim 55, wherein said second compression plate is operatively connected to a second pivot assembly, which is in turn connected to a second extension member, which is in turn translationally secured to said upright member.

58. (Original) The ultrasound breast imaging assembly of claim 55, wherein said first extension member is perpendicular to said upright member, and wherein said first extension member translates along said upright member while said first and second compression plates remain angled with respect to one another, wherein the angle between the first and second compression plates changes when a breast is compressed therebetween.

59. (Original) The ultrasound breast imaging assembly of claim 52, wherein said first and second compression plates are configured to adequately compress the breast for imaging even though the breast is not substantially flattened.

60. (Original) The ultrasound breast imaging assembly of claim 52, wherein said ultrasound breast imaging assembly is used in conjunction with an x-ray mammography system.

61. (Original) The ultrasound breast imaging assembly of claim 60, wherein said ultrasound breast imaging assembly is secured to a portion of said x-ray mammography system.

62. (Original) The ultrasound breast imaging assembly of claim 52, wherein at least one group of said plurality of ultrasound elements is selectively activated and deactivated during an imaging procedure.

63. (Previously presented) The ultrasound breast imaging assembly of claim 52, further comprising an upright member supported by a base, and a swivel member that connects said at least one pivot assembly and first and second compression plates to said upright member, wherein said swivel member is configured to rotate said first and second compression plates through a plurality of imaging orientations.

64. (Original) The ultrasound breast imaging assembly of claim 63, wherein said plurality of imaging orientations comprise a cranio-caudal (CC) orientation and a mediolateral oblique (MLO) orientation.

65. (Original) The ultrasound breast imaging assembly of claim 52, wherein said ultrasound breast imaging assembly is configured to allow a patient to be imaged in a standard mammography position.